Initial Culture-based Results from Hanford sediments

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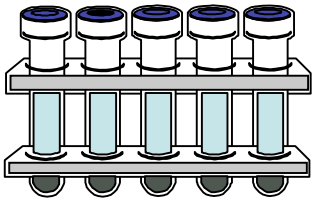
Isolating microorganisms:

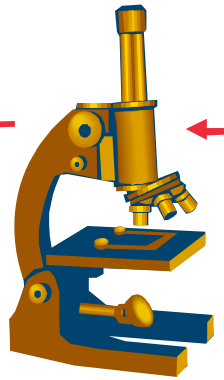
Sediment collected

Enrichments set up

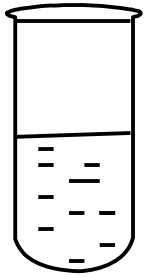
Lactate

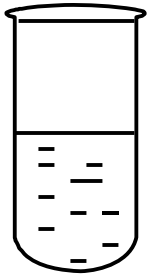
Electron acceptor



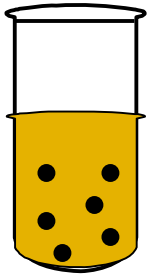


Pure culture of bacterium

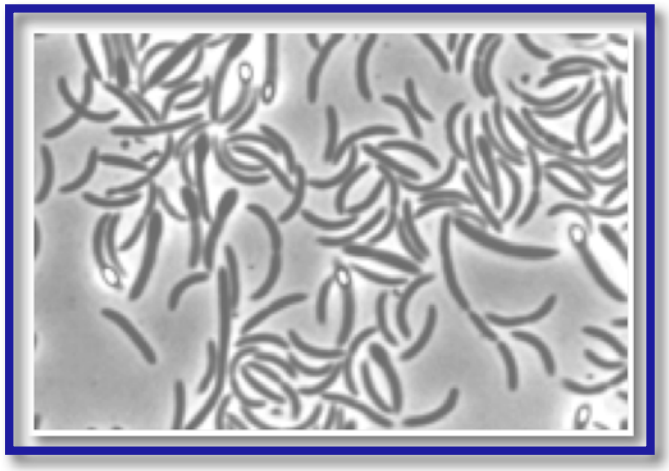




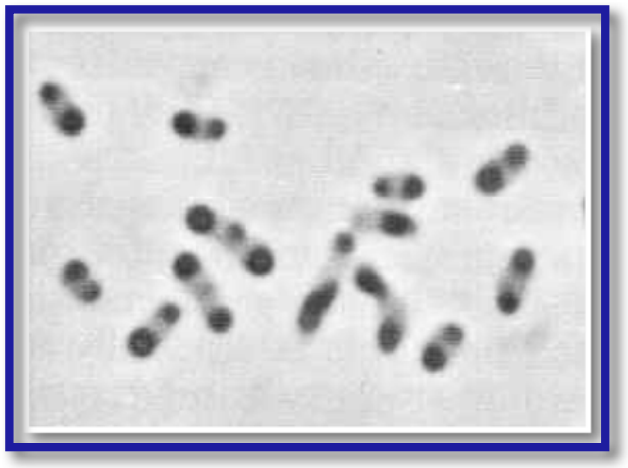
Periodic transfers and microscopic counts



Isolated colonies developed by agar shake tubes method



- 2 isolates - sulfate reducers obtained from the blue depth-55.5’
- Closest to *Desulfosporosinus orientis* and *Desulfosporosinus meridiei* species.
- Both are big curved bacteria, sometimes appear straight. known to have spores.
- Both utilize sulfate and thiosulfate as alternative electron acceptors. not nitrate
- Both utilized lactate and pyruvate as electron donors.
- Both grow best at 37^0C.
- Direct Enzymatic Chromate utilization not tested yet.



- One isolate obtained from the yellow depth-45’
- Its closest relative is *Xanthobacter flavus*
- Organism ferments lactate.
- Does not reduce sulfate.
- Not known if it can reduce Chromium.

Currently, more enrichments are being processed for isolation from the blue and the black depths. Isolates will be obtained in a week.

From the sediments collected in July' 06:

Organism type	Media	E-acceptor	Result	Sediment depth
Sulfate reducer	LS4D	Sulfate	+++	47.2'-47.7'
Sulfate reducer	Fresh water	Sulfate	+	47.2'-47.7'
Nitrate reducer	Fresh water	Nitrate	+++	39'-39.5' 47.2'-47.7'
Iron reducer	Fresh water	Ferric-NTA	+++	39'-39.5' 47.2'-47.7'
Chromium reducer	Fresh water	Chromium	-	

Enrichments are in agar,Isolates will be obtained 7-10 days.